POLICY RESEARCH WORKING PAPER 1518

Sustainability of Private Capital Flows to Developing Countries

Is a Generalized Reversal Likely?

Developing countries that undertake adequate domestic reform should continue to expect capital inflows, despite recent events in Mexico and the U.S. Federal Reserve Board's raising of interest rates during 1994.

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Summary findings

Since 1989, private capital flows to a select group of developing countries have increased sharply, but developments in 1994 have caused concern about the sustainability of those flows. Several highly indebted developing countries that are implementing reform are concerned that a generalized reversal — similar to episodes of capital flight in the early 1980s — might disrupt their economies and threaten economic reform.

Because the surge in private capital flows coincided with a period of low international interest rates and intensive policy reform in developing countries, debate has been active about whether the surge is driven mainly by domestic (pull) or external (push) factors. Under the pull hypothesis, successful domestic policies are the key to ensuring sustainable capital inflows; under the push hypothesis, an increase in international interest rates would cause a reversal of those flows (back to the industrial world).

Using a partial adjustment model in which both domestic and external variables are defined, Hernández and Rudolph explain why private capital flows to some developing countries but not to others (using panel data for 1986–93 for 22 countries).

They argue that a generalized reversal is unlikely in countries that maintain a fundamentally sound macroeconomic environment. In fact, their empirical results show that domestic factors such as domestic savings and investment ratios significantly affected the recent surge in capital inflows.

Further, they suggest that countries that have not received significant foreign capital — including countries in Sub-Saharan Africa — could begin to if they implemented structural reforms that allow them to export, save, and invest at higher rates. Reducing their foreign debt (which might call for a continuation of recent debt reduction operations) could also help attract foreign private investors.

This paper — a product of the International Finance Division, International Economics Department — is part of a larger effort in the department to analyze policy implications of private capital flows to developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room N3-046, telephone 202-473-1047, fax 202-522-3277, Internet address hvo1@worldbank.org. October 1995. (35 pages)

SUSTAINABILITY OF PRIVATE CAPITAL FLOWS TO DEVELOPING COUNTRIES: IS A GENERALIZED REVERSAL LIKELY?

by

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Summary

Since 1989, there has been a sharp increase in private capital flows to developing countries. The similarity between conditions in the early 1980s and those in 1994—an increase in interest rates in the industrial countries after several years in which developing countries received sizable capital inflows,[1] and the recent Mexican crisis[2]—has reopened the question of the sustainability of these flows and the appropriate policy responses to an adverse external shock to avoid a reversal of flows. In other words, the recent Mexican experience highlights the risks of a generalized reversal of flows and reopens the question of sustainability at a time when several developing countries remain highly indebted and are still in the process of completing some necessary economic reforms. Within this context, a generalized reversal of flows could seriously disrupt the economies of these countries and threaten their economic reform process.

The sustainability problem concerns the forces that have driven these flows in recent years, their relative importance, and the possibility that they could move adversely in the future. This research addresses these issues, particularly that of identifying the driving forces behind the surge in private flows. Because the surge in private capital inflows since 1989 has coincided with a period of low international interest rates and domestic policy reform in the developing world, there is a debate about whether the surge is driven primarily by domestic (pull) or external (push) factors. Under the pull hypothesis successful domestic policies are the key to ensuring sustainable capital inflows in the future, while under the push hypothesis an increase in international interest rates would cause a reversal of these flows (back to the industrialized world).

This research attempts to advance our understanding of the causal factors behind the recent surge in private capital inflows by including both pull and push factors in a model of the determinants of private capital inflows. In particular, it uses a partial adjustment model in which both domestic and external explanatory variables are defined, to explain the private capital flows to developing countries. The model is estimated using panel data for 1986-93 for 22 developing countries, including countries that have benefited from the new wave of private capital flows and countries that have not received capital flows. In addition, we compare the means of several economic indicators for two groups of countries: those that have received significant capital inflows in recent years and those that have not.

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[1] Since the start of 1994, the U.S. Federal Reserve Board has raised short-term interest rates six times, from 3 percent to 6 percent.

[2] Recall that the debt crisis was triggered when Mexico declared a moratorium in its external debt in 1982.

Our results show evidence that domestic factors play a significant role in explaining private capital flows. Thus countries may expect to continue to receive capital flows as long as domestic policy reforms remain on the right track: that is, as long as they increase domestic savings, use the capital flows to improve their long-term prospects by increasing investment rates, and increase the growth rate of exports. In other words, economic fundamentals must be improved to attract foreign investors.

In addition, the paper also discusses developing countries' risk of facing a major crisis —like the debt crisis of 1982-83—in the 1990s because of external factors, particularly an increase in international interest rates. We conclude that such a crisis is not likely to occur in the short or medium term, suggesting that a generalized reversal of flows is not a major threat. Nevertheless, in some recipient countries problems could develop in the short or medium term because of domestic factors. In response, appropriate corrective policy actions must be taken to strengthen economic fundamentals.

The findings from this research also imply that countries that have not received large amounts of foreign capital may begin to receive private inflows if they implement structural reforms that will allow them to export, save, and invest at higher rates. Reducing their foreign debt (which may call for a continuation of the debt reduction operations of recent years) may also play a significant role in attracting foreign private investors. This paper also opens up a new direction for further research in regions like Sub-Sahara Africa, which has not benefited so far from the recent surge in private flows.

Sustainability of Private Capital Flows to Developing Countries: Is a Generalized Reversal Likely?

In recent years there has been a sharp increase in private capital flows to developing countries. In fact, the capital account surplus—including net errors and omissions—for developing countries as a whole increased from US$25 billion in 1988 to US$163 billion in 1993, implying an annual growth rate of 46 percent. During the same time period, the current account deficit for developing countries as a group increased from about US$20 billion to US$98 billion, implying a growth rate of 37 percent a year (IMF 1994).

Yet the sharpest increase has occurred in private rather than in official capital inflows (table 1). Thus total long-term private flows—which include foreign direct investment, loans and bond issues, and equity portfolio investment—increased from US$36 billion in 1988 to about US$159 billion in 1993, a growth rate of 34 percent a year (World Bank 1994). At the same time, real official flows increased slightly—from US$45 billion in 1988 to US$54 billion in 1993 (about 4 percent a year).

The similarity between conditions in the early 1980s and those in 1994—an increase in interest rates in industrial countries after several years in which developing countries have received sizable capital inflows,[1] and the recent Mexican crisis[2]—has reopened the question of the sustainability of these inflows and the appropriate policy responses to an adverse external shock to avoid a reversal of flows. In other words, the recent Mexican experience highlights the risks of a generalized reversal of flows and opens the question of sustainability in a magnified way.

The issue of sustainability is particularly relevant because several developing countries remain highly indebted and are still completing the economic reforms necessitated by the debt crisis, which erupted more than a decade ago. Within this context a generalized reversal of flows, by requiring a sharp

[1] Since the start of 1994 the U.S. Federal Reserve Board has raised short-term interest rates six times, from 3 percent to 6 percent.

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reduction in the current account deficit, could seriously disrupt the economies of recipient countries and could put at risk the continuation of economic reform.

The sustainability problem concerns forces that have driven these flows in recent years, their relative importance, and the possibility that they could move adversely in the future. This paper addresses these issues and, particularly, that of identifying the driving forces behind the surge in private flows.

Because the surge in private capital inflows has coincided with a period of low international interest rates and a period of domestic policy reform in the developing world, there has been a debate in the literature about whether the surge is driven primarily by domestic or by external factors. Calvo and others (1993) and Fernandez-Arias (1994) see the new wave of private capital inflows as being "pushed" by external factors—low rates of interest in the industrial countries and a slowdown in their economic growth—and therefore beyond the control of policymakers in developing countries. According to these analysts, an increase in international interest rates would cause flows to turn back to the industrial world. In contrast, Chuhan and others (1993) think that the surge in inflows has been driven mostly by domestic or "pull" factors, and view it as evidence that debt strategies have worked and domestic economic policies have been on the right track. According to this interpretation, successful domestic policies are the key to ensuring sustainable capital inflows in the future. But, these studies fall short of identifying relevant domestic variables and therefore do not provide straightforward economic policy recommendations. In sum, the push-pull story is still inconclusive.

This paper attempts to advance our understanding of the causal factors behind the recent surge in private capital inflows. It includes both pull and push factors in a model that analyzes the determinants of private capital inflows, and establishes some guidelines for appropriate government policies. The results show that domestic factors and, therefore, domestic economic policies, matter in explaining the new wave of capital inflows, implying that developing countries may continue receiving capital inflows as long as they use these resources to improve their long-term prospects.

The second section of the paper briefly describes the recent surge of private capital inflows and reviews the literature. This analysis establishes the appropriate framework for studying the sustainability problem, and to analyze the prospects of developing countries in the short or medium term. Our main conclusion holds that it is very unlikely that developing countries will suffer a significant adverse shock in the short term (including a reversal and "hard-landing") solely because of external factors (as was the case in the early 1980s). Nevertheless, as the recent Mexican experience illustrates, some problems could develop in the short or medium term because of domestic factors. In response appropriate corrective policy actions must be taken in the short term before capital inflows are reduced.

The third section sets up a partial adjustment model to explain private capital flows to developing countries. Both domestic and external explanatory variables are defined. The model is estimated for 1986-93 for 22 developing countries, including countries that have benefited from the new wave of private capital flows and countries that have not received capital flows. The model is estimated using a panel data technique because it is the most efficient way of simultaneously examining cross-country relationships at any point in time and country-specific trends over time.

Capital inflows in the 1990s: stylized facts and causes

There are three outstanding features of the current surge of capital inflows. First, although private capital flows to developing countries began to increase in 1986 after several years of decline, they accelerated when international interest rates began to fall (figure 1). In fact, several authors have argued that the increase in private capital inflows since 1989, particularly portfolio investment flows, is largely due to a fall in interest rates in international financial markets (see Calvo and others 1993 and Fernandez-Arias 1994). The fall in interest rates induced investors in industrial countries to look elsewhere for higher returns, and it improved the creditworthiness of all developing countries—especially the highly indebted ones—by reducing the cost of servicing their debt.

Second, not all developing countries have benefited equally from this surge. The bulk of the capital inflows—70 percent—has gone to East Asia and Latin America (table 2). Moreover, within these regions the distribution among countries has been uneven. In fact, the 15 countries receiving the largest flows received about 82 percent of all inflows during 1989-93 (figure 2), this suggesting that domestic factors may be important in explaining the new wave of private capital inflows. The regions and countries that have benefited the most are, generally, those that have implemented structural reforms in recent years. This connection provides some support for the pull theory (Chuhan and others 1993).

Three episodes during 1994 in some of the countries that had received significant inflows in the past further illustrate the importance of domestic factors. In early 1994 the Turkish government was unable to place a US$1 billion bond issue because of the worsening of its fiscal deficit during 1993. Mexico experienced a capital outflow—of about US$6.3 billion—following the peasant uprising in Chiapas and the assassination of the ruling party's presidential candidate (the Mexican crisis of December 1994 further confirms the important of domestic factors). In Venezuela, poor supervision and monitoring of the banking system led to a banking crisis and induced a capital outflow of about US$3 billion.

Third, the composition of flows in the 1990s is different from that in the late 1970s and early 1980s, when syndicated bank lending was the major channel through which developing countries borrowed from abroad. Today, foreign direct investment and portfolio equity investment play a major role, adding up to about 68 percent of total private flows (table 2).[3] The large share of equity investment in the current surge is evidence of a larger risk-sharing component than in the late 1970s, possibly implying that the flows are more long term than in the past. The new composition of flows indicates that a structural change has occurred in international capital markets since the debt crisis, made up of two elements:

[3] The share of Foreign Direct Investment (FDI) in the 1970's was about 10 percent of total flows, while debt accounted for about 90 percent (both short-and long-term debt).

- A technological change in financial markets and in the processing of information, which has allowed institutional investors in developed countries to spread their country risks through greater portfolio diversification.
- Greater access of developing-country borrowers to industrial-country financial markets after the easing of regulations in some major industrial capital markets. Regulation changes include the U.S. Security and Exchange Commission (SEC)'s Rule 144a and the new credit guidelines for the Samurai bond market introduced in August 1992.[4]

External factors: a review of the literature

Several authors have attempted to quantify the importance of external and domestic factors in attracting capital inflows to developing countries. The pioneer work in this area, Calvo and others (1993), uses monthly data on the change in international reserves (a proxy for monthly capital inflows) as the dependent variable,—during 1988-91 for ten Latin American countries. The authors conclude that the drop in interest rates and the recession in industrial countries during those years accounted for about 50 percent of the variability in these flows, but the authors do not include any domestic variables to explain the inflows. Similarly, Fernandez-Arias (1994) uses quarterly data on portfolio capital flows (bonds plus equity) for thirteen countries during 1989-93 and concludes that about 86 percent of the increase in flows to these countries since 1989 is due to a fall in interest rates in international markets. Nevertheless, like Calvo and others (1993), Fernandez-Arias falls short of including and trying to identify relevant domestic variables and, therefore, does not provide straightforward economic policy recommendations.[5]

Recently, there have been clear signs that international interest rates will recover from the record low observed during 1992-93—a clear threat to developing countries.[6] Yet the increase in both real and

[4] The introduction of Rule 144A in the U.S. stock exchanges has considerably simplified trading in foreign equities by eliminating costly settlements delays, registration difficulties, and dividend payment problems. Under Rule 144A, qualified institutional buyers in the United States no longer need to hold securities for a two-year period before they can be sold. Foreign issuers can now gain access to a relatively large number of U.S. institutional investors. Similarly, the credit rating standards for public placements of bonds in Japan were relaxed according to the new credit guidelines for the Samurai bond market.

[5] This may also imply the existence of an specification error and biases in their results.

[6] The six-month dollar denominated LIBO rate reached 3.9 and 3.4 percent in 1992 and 1993, respectively. IMF (1994: 127).

nominal interest rates is expected to be much lower than that witnessed in the years leading to the debt crisis. Then, the sharp increase in real interest rates in international markets resulted from a combination of tight monetary policies in some industrial countries to fight domestic inflation, and expansionary fiscal policies to boost their domestic economies. Between 1977 and 1981 the nominal LIBO rate rose from 6.5 to 16.7 percent (the average expost real LIBO rate in U.S. dollars, using the U.S. wholesale price index, rose from about 1.8 percent in 1978 to about 11.3 percent, 1982). By contrast, IMF estimates put the six-months dollar-denominated LIBO rate at 6.0 percent for 1995, and World Bank estimates put the rate at 5.8 percent for the next ten years.[7]

Two major reasons stand behind the assertion that the expected increase in international interest rates will be minor. First, current inflation rates in industrial countries are much lower than those in the late 1970s. In fact, the average inflation rate (using the consumer price index) for all industrial countries was 2.9 percent in 1993, and it is forecasted to be slightly lower in the next several years. By contrast, during 1979-81 that rate of inflation ranged from 9 to 12 percent.[8] Second, the recent deficits run by the governments of the major industrial economies will force them to pursue a prudent fiscal policy in the future. In fact, these deficits are expected to be lowered by almost two percentage points of GDP during the next three years.[9]

Thus, although the increase in international interest rates represents a serious threat for developing countries, in real terms the increase will probably not be as great as the increase in the early 1980s and, therefore, will not be the major cause of a reversal of flows.

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[7] IMF (1994: 17); World Bank, (1994, 7).

[8] IMF (1994: 17); World Bank (1994: 7); IMF list in references (1986: 188).

[9] The General Government Fiscal deficit of the major industrial countries increased from 1.7 percent of aggregate output in 1979 to about 4 percent in 1983-84; it then steadily decreased to a record low of 1.3 percent in 1989. It began increasing thereafter to reach 3.8 and 4.3 percent in 1992 and 1993, respectively. It is expected to fall to 3.9 and 3.5 percent of GDP in 1994 and 1995, respectively, and to be about 2.6 percent for the following three years. IMF (1986: 196, 1994: 57).

Another external factor standing behind the surge is the structural change in international financial markets and this is believed to be caused by permanent rather than transitory factors (that is, the change is due to technological and institutional developments that are most likely nonreversible). Also, the larger share of equity investment in the current surge of inflows suggests that foreign investors now have a longer investment horizon than in the late 1970s. As a result, there is little chance of seeing a reversal of flows in the short run because of a temporary negative development, which most likely would be the case with hot money. In sum, variables external to developing countries are unlikely to change substantially in the short or medium term, thus a generalized reversal of capital inflows would not be induced.

In addition to the two papers already discussed, Chuhan and others (1993) tries to measure the importance of domestic factors, as well as external factors, using monthly data on portfolio flows (bonds plus equity) from U.S. sources as the dependent variable. The sample includes 18 developing (recipient) countries in East Asia and Latin America during 1988-92. The authors conclude that domestic factors are at least as important as external factors in attracting flows to Latin American countries, and three to four times more important for East Asian countries. Yet their conclusions have limited policy implications because the explanatory variables used as proxies for domestic factors—for example, the stock price–earnings ratios and the secondary market price of a country's external debt—are not controlled by policymakers. Furthermore, as demonstrated in Fernandez-Arias (1994), the domestic explanatory variables used by Chuhan and others (1993) are not independent of international interest rates.

Although external factors may explain a large part of the recent surge in capital inflows, the three papers mentioned above have limited implications because they fail to include in their samples countries that have not received substantial inflows in recent years, possibly inducing a sample-bias problem. Indeed, as mentioned earlier, the uneven distribution of private flows among regions and among developing countries within those regions—as well as the recent developments in Mexico, Turkey, and Venezuela—is suggestive of the role played by domestic factors in attracting flows to developing countries. Furthermore, the recipient countries began receiving the inflows in different periods, with some starting as early as 1988

or 1989 (Thailand and Malaysia, respectively), and others as recently as 1992 or 1993 (The Philippines and Peru, respectively). The importance of domestic factors can be assessed by comparing those countries that have received sizable capital inflows with those that have not attracted sizable inflows in the past.

The role of domestic factors: a preliminary assessment

For the purpose of this analysis developing countries are separated into two categories: high-capital-inflow recipient countries (HCIR) are those that in recent years have received private inflows averaging more than 2 percent of their 1992 GNP annually. Low-capital-inflow recipient countries (LCIR) are those that have received, on average, less than 2 percent of their 1992 GNP, annually. Capital inflows are averaged over a period starting when the surge began in each country (the cutoff period) and ending in 1993, or between 1990 and 1993 if there is no clear cutoff period (table 3).

Several striking differences between the two groups can be seen (table 4). First, savings as a percentage of GNP for the HCIR countries is about twice as high as that for the LCIR countries. Furthermore, the countries that save the least within the HCIR group (Argentina and Mexico—17 percent) still save more than the average for the LCIR group. The higher savings rate in the HCIR group is mainly a result of a lower consumption rate of the private sector. The HCIR countries have consistently invested about eight percentage points more of GNP than the LCIR countries. It follows that national (foreign) savings have financed a larger (smaller) share of domestic investment in the HCIR countries than in the LCIR countries.

Second, the fiscal deficit in the LCIR countries is five times larger than that of the HCIR countries, meaning that both the private and the public sectors save more in the HCIR countries. Consequently, the average monthly inflation rate is about 1.2 percent higher in the LCIRs than in the HCIRs; that is, about 14 percent higher per year.

Third, the LCIR countries appear to be more unstable on several grounds. The coefficient of variability of the monthly inflation rate for the LCIRs is twice as large as that of the HCIR group. This difference is even greater when using the variance of the monthly inflation rate, which is computed after excluding the outliers in both groups (Argentina, Brazil, and Zaire). Likewise, the real exchange rate appears to be more volatile in the LCIR countries, probably adversely affecting their export industry.[10] In addition, the political risk index (PRI) for the LCIR group is almost 11 points below that of the HCIR group.[11] Moreover, for the LCIR countries this index is well below the prohibitive risk level of 40.

Finally, countries in the HCIR group appear to be more creditworthy in that they maintained lower indebtedness and a higher reserves ratio during the early years of the high capital inflows episode and have better-performing export industries. In fact, prior to the surge the stock of international reserves for the HCIR countries was, on average, twice as high as that for the LCIR countries, while indebtedness was about half as great. In addition, the export ratio in the HCIR countries is four percentage points higher than that in the LCIR countries—10 percent points higher (32.8 percent compared with 23.2 percent) if the outliers in each group are excluded (Argentina among the HCIR group at 10.8 percent, and Jordan among the LCIR group at 86.8 percent). Furthermore, exports have also been growing at a higher rate in real terms in the HCIRs than in the LCIRs—the respective compound rates of growth are 8.5 percent and 4.8 percent annually—meaning that the repayment capacity of the HCIRs is improving faster than that of the LCIRs.

These facts provide a motivation for trying to assess more precisely the importance of pull factors. Although our empirical analysis in the next section looks similar to those carried out earlier by other authors, some important differences are worth noticing. First, we use a more comprehensive data set in that, instead of relying only on portfolio investment flows as the dependent variable, all sources of private

[10] It is important to note that, because of missing data, the average group variance in the LCIR countries is computed with only six data points: Bolivia, Egypt, India, Jordan, Morocco, and Nigeria.

[11] The PRI was developed by Business Environment Risk Intelligence (BERI). This index measures the sociopolitical conditions in a country using a 0-100 scale. An increase in this index means lower political risk. A prohibitive risk (index below 40) means that political conditions severely restrict business operations: asset losses are possible and disturbances are part of daily life.

long-term funds are included (portfolio flows; foreign direct investment, which accounts for 50 percent of the inflows; and private loans). Second, a larger sample of 22 developing countries—all of those for which all relevant data are available—for the period 1986-93, is evaluated. As a result, we examine countries in the LCIR group as well as in the HCIR group.[12] Third, as in Dooley and others (1994), we try to identify some domestic variables that may affect capital inflows and that, at the same time, can be more easily (at least indirectly) modified by policymakers in developing countries.[13] Finally, because we use annual data, our results have a longer-term interpretation than those of previous studies. Our results also allow for a dynamic analysis of capital inflows, showing that the change in either domestic or external conditions will cause the inflows to adjust over time (as opposed to the static analysis adopted by the papers discussed above).

A stock adjustment model

Suppose that a group of foreign agents is interested in investing in a particular developing country. It is assumed that there is a desired stock of foreign liabilities for each developing country *i*, which depends on internal as well as external conditions. This stock can be represented by:

$$D^*_{it} = \alpha_i + \beta X_{it} \tag{1}$$

where D^* is the desired stock of foreign liabilities and X is the vector of exogenous variables. In any given period t, the desired value of the stock of foreign liabilities (D^*_{it}) may not be completely realized because of information, physical, or procedural constraints. The adjustment process can be represented as:

$$f_{it} \equiv D_{it} - D_{it-1} = \delta(D^*_{it} - D_{it-1}) + \gamma f_{it-1} + \varepsilon_{it} \tag{2}$$

with $0 < \delta, \gamma < 1$. This equation specifies that the change in the stock of foreign liabilities responds to the difference between the desired stock of D and the lagged value of D, and the flow of the previous period, plus a random error term ε. The partial adjustment mechanism implies that private capital inflows

[12] The final sample was dictated by real exchange rate data availability. The following countries were included in the panel data regression: Argentina, Bolivia, Brazil, Chile, China, Colombia, Costa Rica, Egypt, India, Indonesia, the Republic of Korea, Malaysia, Philippines, Portugal, Thailand, Turkey, Mexico, Venezuela, Jordan, Morocco, Tunisia, and Nigeria.

[13] Dooley and others (1994) uses the secondary market price of debt (rather than capital inflows) as the dependent variable.

(which includes foreign direct investment) adjust the stock of foreign liabilities only partially toward its optimal level, D^*, which in turn varies along with changes in the underlying variables X_{it}. The rationale for this first term is the standard one: it reflects the increasing costs of adjusting to the desired stock of foreign liabilities, when referring to new investment projects. The second term, γf_{it-1}, reflects the presence of contractual obligations or changes in investment flows for decisions made earlier, which are modified during the second period given the prevailing state of nature.[14]

Substituting for D^*_{it} in equation 2 and solving for the amount of flows (f_{it}) gives:

$$fit = \delta\alpha_i + \delta\beta X_{it} - \delta D_{it-1} + \gamma f_{it-1} + \varepsilon_{it} \tag{3}$$

Equation 3 can be rewritten as:

$$f_{it} = \alpha'_i + \beta' X_{it} - \delta D_{it-1} + \gamma f_{it-1} + \varepsilon_{it} \tag{4}$$

where $\alpha' = \delta\alpha$ and $\beta' = \delta\beta$.

It is important to note that the model as written in equation 4 has been designed to capture only long-term movements in the stock of foreign liabilities; hence, it does not allow for overshooting in *fit*.

External factors

Among the external variables that could affect capital inflows the international interest rate is a primary candidate. Two forces are at work: increases in the level of international interest rates make the opportunity cost of investing in developing countries higher, thus reducing the desired stock of foreign assets, and increases in international interest rates raise the total debt service obligation of the borrowing countries (for the portion of their external debt contracted at a variable rate), thus increasing their risk of default and reducing their creditworthiness. Therefore, the expected sign is negative.

[14] The justification for including two partial adjustment terms can be better understood by noticing that the decision to continue an investment project is different from the decision to start a new one. Moreover, FDI usually involves large investments that may take several years to implement and may imply long-term contractual (binding) obligations. A more restrictive version of the model would set γ equal to zero. For simplicity, only one period lag is assumed.

Domestic factors

Because there are many potential domestic factors explaining the determination of the desired stock of foreign liabilities, the impact of these variables will be related through their effect on the investment climate.

- Investment rate: Higher investment rates can improve the productive capacity of a country, which in turn can increase its repayment capacity as it achieves higher economic growth. Therefore, the expected sign is positive. However, investment can be financed by foreign savings, meaning that a positive correlation between investment rates and capital inflows may occur if foreign savings is the major source of investment financing. Two caveats are in order here. First, empirical evidence suggests that this problem may not be very important, as the bulk of investment in developing countries is financed by domestic savings.[15] Second, the appropriate use of lags minimize this simultaneity or exogeneity problem.
- Domestic savings rate: Complementarity among different types of savings, foreign and domestic, would reinforce the commitment to increases in the productive capacity and creditworthiness of a country.[16] Private savings is intrinsically related to private consumption. Two alternative approaches should be tested. One implies that higher consumption levels are associated with individual perceptions of higher permanent income, which results in a higher desired stock of foreign liabilities today. Under this interpretation, individuals that want to smooth their consumption levels across time—if not liquidity constrained—would borrow to increase their current consumption levels, and this borrowing will lead to a positive relationship between consumption and capital flows. The second view implies more conservative foreign investors, who will be tempted to invest in those countries in which private savings are complementary to external savings. Under this interpretation, in which foreign investors see private savings as a signal of confidence in the prospects of the domestic

[15] About 95 percent of total investment in developing countries during 1988-93 was financed by domestic savings. IMF (1994).

[16] Feldstein and Horioka (1980) and Dooley, and others (1987) find strong positive correlations between national savings and domestic investment rates. This finding has been interpreted as evidence of capital immobility. If capital were mobile, there would be no reason to predict that countries with relatively high saving ratios over a given period would also have relatively high investment ratios, since savings would be redistributed to countries that offered relatively high rates of return on physical capital.

economy, the expected sign of private consumption is negative. Decreases in private consumption rule out the possibility of a consumption boom and signal a favorable domestic investment climate to foreign investors.

- Instability: There are a number of variables that indicate the uncertainty of investing in a country. These include the variability of the real exchange rate, the variability of inflation, and political instability. Of course, instability makes a country unattractive from the investor's point of view.
- Exports: Export growth is an indicator of both the capacity of the domestic economy to compete with the rest of the world, and of the development of the tradable sector within the economy. This measure indicates a country's repayment capacity and is expected to have a positive coefficient.

Other variables

Official and Private Debt: As the level of debt increases, given a fixed repayment capacity, the solvency (creditworthiness) of a particular country decreases, making it less attractive to invest in. In the empirical exercise below we attempt to distinguish between official and private creditors.[17]

Results

As in previous studies panel data regression analysis is used (table 5). This is the most efficient and consistent estimation technique if there is a sample of several countries in which each has only a few data points. In fact, the use of panel data allows for the most efficient examination of cross-country relationships at any point in time and country-specific changes over time.

After some preliminary tests (that is, Hausman's test), the model was estimated with fixed effects. The estimated regression is of the following type:[18]

[17] The stock of debt held by private creditors is more likely to be the variable associated with the partial adjustment parameter (δ in equation 4). In all the regressions, however, this parameter turns out to be not significantly different from the one that includes total external debt. Thus the reported regressions include debt contracted with both official and private creditors.

[18] This follows from equation 4.

$$F_{it} = \alpha_i + \underset{(+)}{\beta_1 INV_{it-1}} + \underset{(-)}{\beta_2 CONS_{it-1}} + \underset{(-)}{\beta_3 DRES_{it-1}} + \underset{(-)}{\beta_4 VRER_{it}} + \underset{(+)}{\beta_5 DBRAD} + \underset{(+)}{\beta_6 EXPG_{it-1}} + \underset{(-)}{\beta_7 IUS_t} + \underset{(+)}{\delta F_{it-1}} + \mu_{it}$$

where,

F: total long-term private flows (as defined above), as a ratio of GNP.

INV: two-year moving average of gross domestic investment, as a ratio of GNP.

CONS: two-year moving average of aggregate private consumption, as a ratio of GNP.

DRES: total external debt minus the stock of international reserves, as a ratio of GNP. Alternatively, TSFL (total stock of foreign liabilities) is included in the regressions. TSFL is calculated as the total debt minus reserves, plus the accumulated flows of portfolio equity and foreign direct investment since 1970 (assuming a zero rate of depreciation), also measured as a ratio of GNP.[19]

VRER: volatility of the real effective exchange rate, computed as the intra-annual (12 month) variance.

DBRAD: dummy variable to identify those countries that have successfully completed a Brady operation.

EXPG: real export growth (in percent).

IUS: U.S. interest rates (in percent). Three alternative rates are used: ITBND3 is the U.S. three-year government bond yield; ITB12 is the twelve-month U.S. treasury bond rate, and IPRIN is the first principal component of five interest rates and the U.S. industrial production index (see the papers by Calvo and others, and by Chuhan and others).

μ : error term.

As argued earlier, the model is designed to capture long-term variations in the desired stock of foreign investment (foreign liabilities) resulting from permanent changes in fundamentals. Hence, gross investment and private consumption are averaged over a two-year period in an attempt to capture their long-term (permanent) component—as opposed to their transitory or cyclical components. Both variables are lagged one period to minimize the risk of simultaneity bias. Also as argued above, one lag of the dependent variable is included in the regression because investment projects—in particularly FDI—may

[19] See Fernandez-Arias and Montiel (1995).

take more than one year to be fully implemented. The expected signs of the coefficients are given in parentheses in the equation.

The regressions reported in Table 5 suggest the robustness of the parameters. The findings support the importance of domestic factors in explaining the recent wave of private capital inflows.

The second column of table 5 shows that capital flows respond positively to increases in domestic investment (in previous periods) and, most importantly, that foreign savings tends to complement rather than substitute for private domestic savings. Both the investment and private consumption coefficients are significant.

Also as expected, the partial adjustment coefficient of total indebtedness net of foreign reserves, β_3, is negative and significant. As mentioned earlier, results are not significantly different when the total stock of foreign liabilities is used (see Columns 3 and 6 of table 5).

The measure of instability (volatility of the real exchange rate) also has a negative and statistically significant effect on net long-term private capital inflows. Exchange rate volatility probably affects capital inflows by jeopardizing the development of the export industry. The parameter of the real exports growth rate is surprisingly low (with the correct sign), although not significant.

Most striking is the result that capital inflows do not seem to be sensitive to the 12-month U.S. Treasury bill rate. Even more, the parameter associated with the interest rate has the opposite sign (than expected). This result contradicts the findings in all the papers cited above. At least three explanations can be offered for this result: use of a different sample period; interest rate misspecification; and a different specification of capital flows.

Sample period

The time period used in our study differs from those in previous papers in that the other authors' samples include mostly years in which interest rates were decreasing. Indeed, for the sample 1989-93 there is a clear, negative correlation between interest rates and capital flows (see figure 1). But, for a longer sample period this conclusion is no longer valid.[20]

To account for previous papers' findings, an additional explanatory variable, IDUM90, is added to the regression in column 2. This variable is a multiplicative dummy for the interest rate for 1990-93, a period of greater financial integration and declining U.S. interest rates. Our objective here is to show that the results by Calvo and others (1993), and Fernandez-Arias (1994), are sensitive to the sample period that they are using. This dummy variable may capture a structural change in the relationship between capital inflows and international interest resulting from the financial liberalization of the late 1980s, which led to a more integrated financial world. Column 2 shows that this parameter is negative, making the total effect of the interest rate during 1990-93 negative (the sum of β_7 and β_8 equals -0.00038). The results, however, capture only partially the previous literature findings since the parameter for the interest rate dummy, IDUM90, is not statistically significant at the 10 percent level (the t-test for the sum of β_7 and β_8 equals -0.29).[21]

Interest rate misspecification

Other estimations, reported in columns 4 to 7, confirm that the results reported in column 2 are robust to the use of other interest rate measures, such as the three-year U.S. Treasury bond rate (columns 4 to 6) and the first principal component of several U.S. interest rates and the U.S. industrial production

[20] Table A.1. (second column) reports that interest rates are negatively correlated with total flows during 1986-93, but positively correlated during 1979-93.

[21] Furthermore, a variance decomposition carried out using the results in column 2 shows that pull factors, as a block, explain about 32 percent of the variation in inflows in the short-run (66 percent taking a long-term approach), while push factors explain only 1 percent (2 percent using a long-term approach).

index (column 7, used in Calvo and others, and in Chuhan and others).[22] This proves that our results differ from those reported elsewhere not because of the particular interest rate measure we are using.[23]

Different specification of capital flows

Foreign direct investment, which is not included in the inflows measure used in the studies by Fernandez-Arias, and Chuhan and others, and which represents the largest share of total private flows in our sample (see table 9 below), may be less sensitive to changes in interest rates than, say, portfolio flows (the dependent variable used by most of the other authors). [24] When the dependent variable is total long-term capital flows excluding foreign direct investment, the total effect of the international interest rate on private capital flows during 1990-93, not statistically different from zero even though the estimated parameter for the interest rate dummy variable (IDUM90) becomes negative and significant (table 6, columns 2, 3, 5 and 6). Thus, for example, the sum of β_7 and β_8 in regression 2, table 6, equals 0.00006, while the t-test for this sum equals 0.05.[25]

Even though these results do not completely corroborate the findings of Calvo and others, and Fernandez-Arias, they appear to be consistent with those of Niehans (1994) and Stockman (1988). These papers argue that there is not a straightforward relation between interest rate differentials and capital flows.[26]

Additional regressions are used to test for the robustness of our findings. A third regression excludes all (private) publicly guaranteed bank lending from the dependent variable, because this type of

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[22] As it is shown in Table A.1 all the alternative measures for the level of U.S. interest rates are highly correlated. See also the discussion in Chuhan and others (1993) and in Fernandez-Arias (1994).

[23] One possible reason for the low explanatory power of the international interest rate in all our regressions is that we are using a small number of time-series observations (8 years).

[24] FDI also seems to show higher persistence over time than other types of flows, which probably explains the larger coefficient for the lagged dependent variable in tables 5 and 8 than in table 6.

[25] A variance decomposition carried out using the results in column 2, table 6, shows that pull factors, as a block, explain about 56 percent of the variation in inflows both in the short run and in the long run, while push factors explain only 6 percent.

[26] Niehans (1994) points out that "If the underlying shift occurs in the domestic demand or supply of domestic assets, capital seems to flow toward higher interest rates, but if the shift occurs in the domestic demand or supply of foreign assets, capital seems to flow in the direction of lower yields."

flow may consist of nonvoluntary lending, especially during 1986-89 (table 7). The results are not significantly different from the regressions reported in table 5. It is interesting to note that the parameter of export growth becomes higher and highly significant. Coefficients associated with interest rates continue to be small and insignificant, although they have the correct sign.[27]

Although it is the purpose of this paper to explain the most recent episode of capital inflows, when a longer sample period—1979-93—is used (table 8), the estimated coefficient for the lagged endogenous variable is greater than the one reported for the shorter period (column 2, table 5).[28] Even though the coefficients are smaller in general, the results concerning the investment ratio, the international interest rate, and the indebtedness ratio (net of reserves) appear to be consistent with previously reported regressions.[29] However, coefficients associated with the volatility of the real exchange rate and to domestic (private) consumption turned out to be insignificant over the entire sample period.

This less than fully satisfactory result may be explained by noting that during the years preceding the debt crisis, most of the borrowing in developing countries was done by the public sector, implying that lenders were probably less concerned about savings of the private sector. Also, several developing countries have only recently began to liberalize their trade regimes, meaning that during the late 1970s and early 1980s their exports were highly concentrated in only one or two basic commodities (such as oil or copper), with low export elasticities with respect to the real exchange rate. The dummy variable for the Brady deals turns out to be significant, while the export growth parameter becomes negative, though insignificant.

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[27] Regression 7 in table 7 is the only one in which the coefficient for the interest rate dummy variable, IDUM90, becomes negative and significant. Yet the sum of β_7 and β_8 is small (-0.002) and not statistically different from zero (t-test equals -0.78). A variance-decomposition carried out using these results shows that pull factors, as a block, explain about 37 percent of the variation in inflows in the short run (51 percent in the long run), while push factors explain only 2 percent (3 percent in the long run).

[28] It is worth noticing that under the within estimator, an increase in the number of years increases the consistency of the coefficient for the lagged dependent variable. In the small sample 1986-93, this autocorrelation coefficient is biased downward.

[29] Again, regression 7 in table 8 is the only one in which the coefficient for the interest rate dummy variable, IDUM90, becomes negative and significant. Yet the sum of β_7 and β_8 is small (-0.003) and not statistically different from zero (t-test equals -1.08). A variance decomposition carried out using these results shows that pull factors, as a block, explain about 22 percent of the variation in inflows in the short-run (46 percent in the long run), while push factors explain only 2 percent (4 percent in the long run).

Long-term prospects

As argued above, external factors are not expected to worsen drastically in the short or medium term. Therefore, developing countries may continue to receive flows if they implement reforms that lead to an increase in domestic savings and investment, a reduction in the size of the central government deficit, and an increase in the growth rate of exports.

The econometric results discussed above, when applied to a simulation exercise, show that an increase in foreign reserves of, say, 5 percent of GNP (a fall in net indebtedness from 0.8 to 0.75), would allow a "typical" developing country to receive a larger flow of foreign private capital of about 0.3 percent of GNP in the medium term (figure 3).[30] Similarly, a decrease in private consumption and an increase in gross domestic investment of, say, 5 percent of GNP each, would permit a "typical" developing country to receive about 1.6 percent of GNP more in terms of foreign capital over a period of four to five years (about 0.8 percent of GNP each; figures 4 and 5).

One final exercise consists of analyzing the effects of a debt-reduction operation. A Brady operation would allow a "typical" developing country to start receiving a larger (private) capital inflow of about 0.9 percent of GNP in the medium term (figure 6). As in the previous simulations, the inflow increases smoothly and stabilizes after about five years. A Brady deal differs from a simple increase in net reserves because it significantly increases the creditworthiness of the country. This result is instantaneously reflected in increases in the secondary market price of a country's debt.[31]

Could the Mexican crisis have been foreseen?

Based on the above analysis a final word concerning the Mexican crisis should be made. The crisis triggered in Mexico last December after the devaluation of the peso has at least two components. On

[30] Our empirical results are downward biased because of a small sample problem in panel data estimation (see Arellano and Bond 1988). Nevertheless, this bias implies that the effect on private capital inflows of any of the other exogenous variables is underestimated in absolute value.

[31] For a detailed analysis of the Brady Operations see Fernandez-Arias (1993).

the one hand, the crisis is related to the tragic events occurring in 1994, such as the assassinations of two influential political leaders and the peasant uprising in the southern state of Chiapas, which most likely had a negative impact on foreign investors' confidence. On the other hand, the crisis is also a consequence of poor macroeconomic management and a lack of strong fundamentals.

Unfortunately, the effect of the former component is not measurable, at least not at this point in time given economists' current understanding and handling of sociopolitical events. The second component, however, is strongly supported by our previous analysis and by the fact that by end 1993 Mexico had poor fundamentals, at least compared with other countries within the HCIR group. By the end of 1993 all fundamentals were better for the average country within this group than for Mexico, except for the fiscal deficit and total external debt (both as a percentage GNP; table 10). It could be argued, then, that Mexico was more likely than other high-recipient countries to suffer a crisis if a negative shock occurred.

Furthermore, our results also seem to be consistent with the different impact that the "tequila effect" had across regions and among countries within those regions. It is well known that Latin American countries were more affected by the Mexican crisis than East Asian countries, and that within the Latin America region Argentina was the country that suffered the most. These differences can be well explained by noting that: first, among the Latin American countries Argentina, like Mexico, also had poor fundamentals at the end of 1993—in fact these two countries had the worst fundamentals among all HCIRs (see Table A.2)—and second, in recent years the East Asian region has experienced an investment boom (with the exception of the Philippines) while the Latin American region has experienced a consumption boom (with the exception of Chile; figure 7).[32]

[32] For this comparison across regions see also World Bank (1995: 16-17).

Concluding remarks

This paper discusses the potential risks for developing countries of facing a major crisis—like the debt crisis of 1982-83—during the 1990s, especially after several years of receiving large amounts of foreign capital in the form of (mainly) foreign direct investment and portfolio flows (both equity and bonds). We conclude that a major crisis caused by external factors, mainly an increase in international interest rates, is very unlikely to occur in the short or medium term, suggesting that developing countries may act to reduce the possibility of a generalized reversal of flows, even after the Mexican crisis.

Econometric results support the importance of pull factors as determinants of the recent wave of long-term private capital inflows to developing countries. Therefore, developing countries may continue to attract flows if they continue in the direction of recent years: improve the domestic investment climate by creating a less risky environment and improving their fundamentals.

Our empirical results suggest that countries may increase the amount of foreign private capital they receive (as a share of GNP) if they invest more, reduce the current account deficit by increasing private domestic savings, reduce their indebtedness, increase their stock of foreign reserves, boost their export industry, and reduce the volatility of the real exchange rate.

These findings are important because they show that domestic factors—and therefore economic policy—matter, meaning that developing countries can avoid a reversal of flows. The findings also imply that countries that have not received large amounts of foreign capital may begin to do so if they implement the structural reforms that will allow them to export, save, and invest at higher rates. Reducing their foreign debt (which may call for a continuation of the debt reduction operations of recent years) may also play an important role in attracting foreign private investors. This study also opens up a new direction for further research in regions like Sub-Sahara Africa, which has not benefited from the recent surge in private flows.

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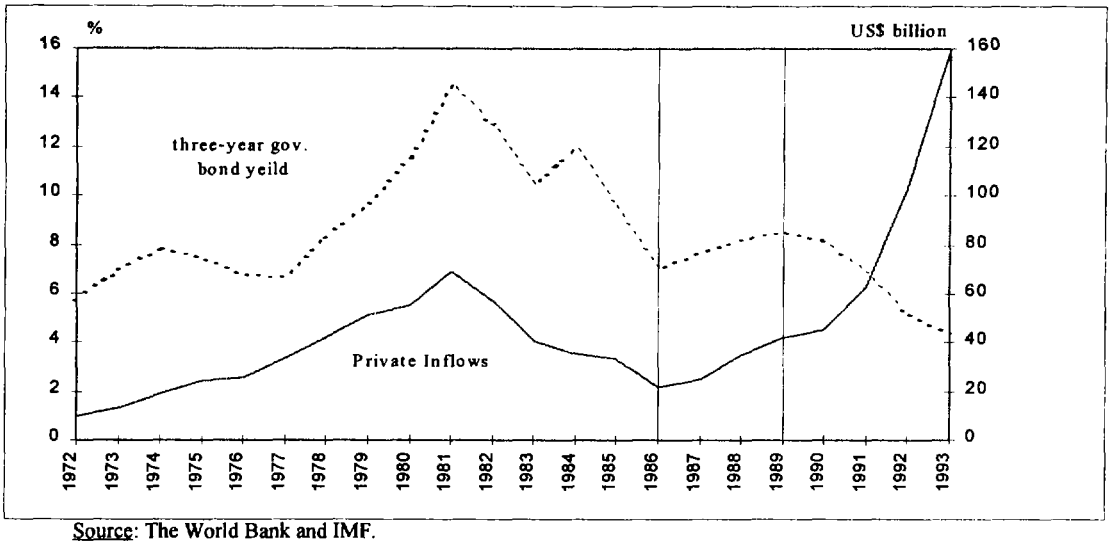
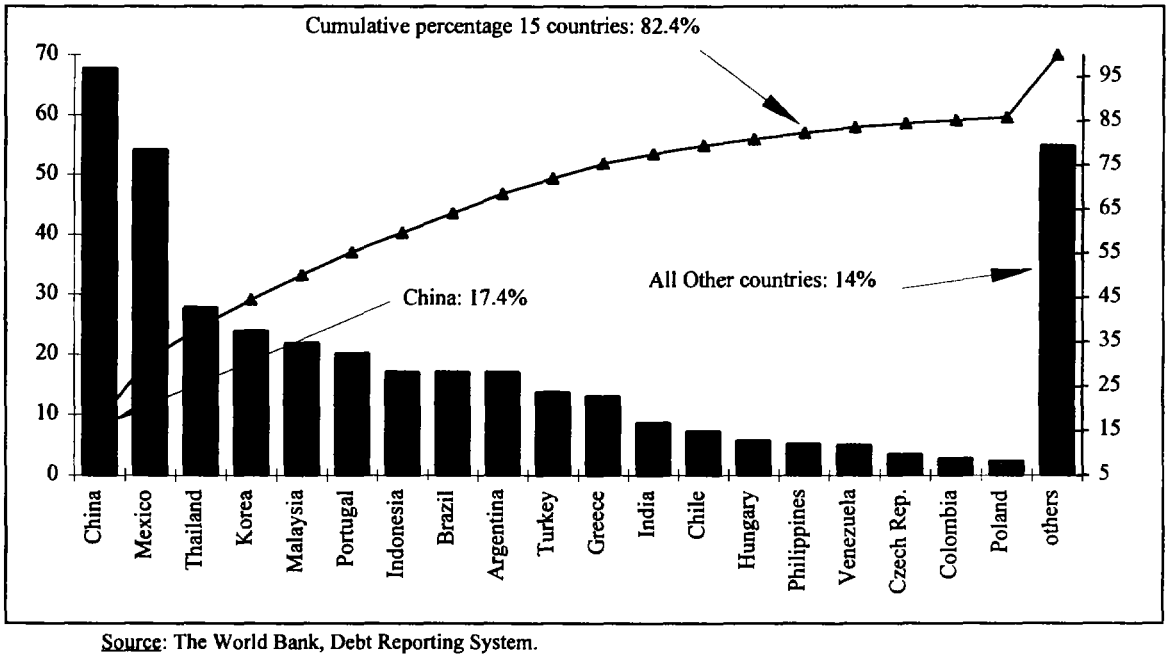
Figure 1: Private flows and interest rates for all developing countries



Source: The World Bank and IMF.

Figure 2: Major recipients of private capital flows, 1989-93 (in US$ billions and in present)



Source: The World Bank, Debt Reporting System.

Figure 3: Response of long-term private capital inflows to an increase in the stock of international reserves (percentage of GNP)

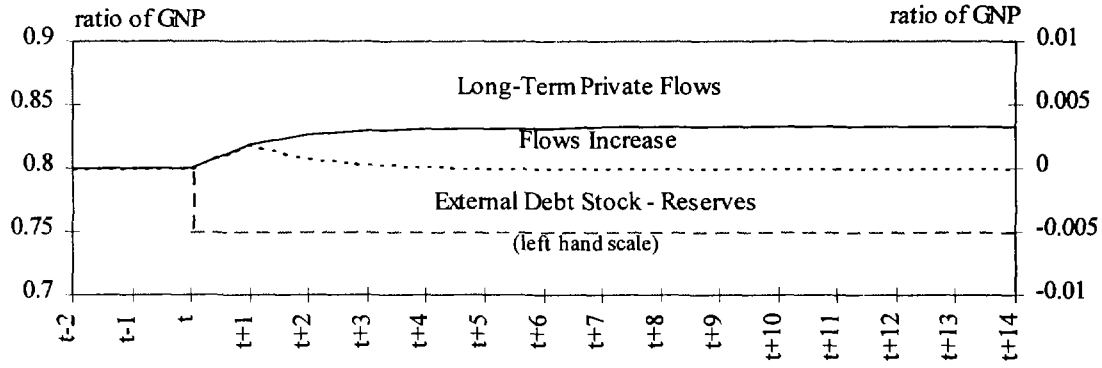


Figure 4: Response of long-term private capital inflows to an increase in gross domestic investment (percentage of GNP)

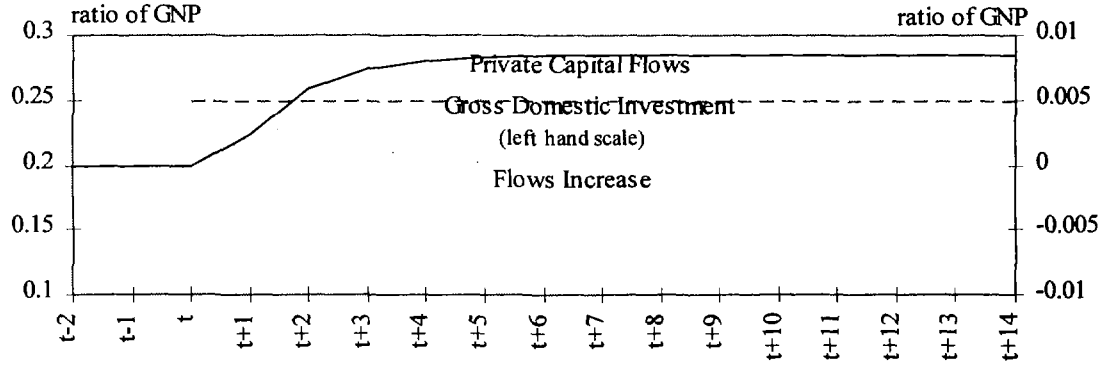


Figure 5: Response of long-term private capital inflows to a decrease in private consumption (percentage of GNP)

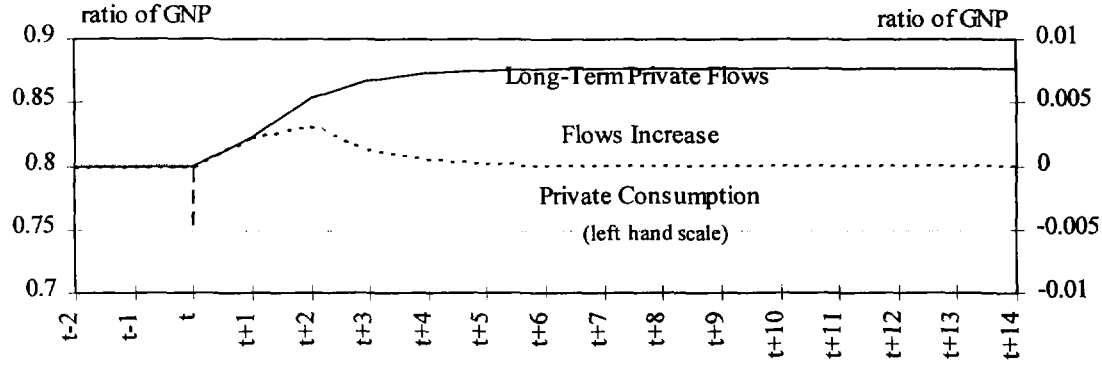


Figure 6: Response of long-term private capital inflows to a decrease in external debt through a Brady operation (in percentage of GNP)

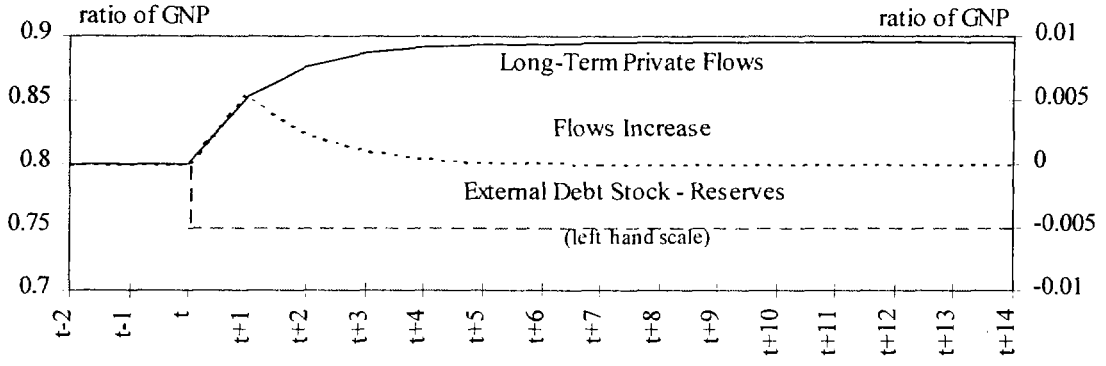


Figure 7

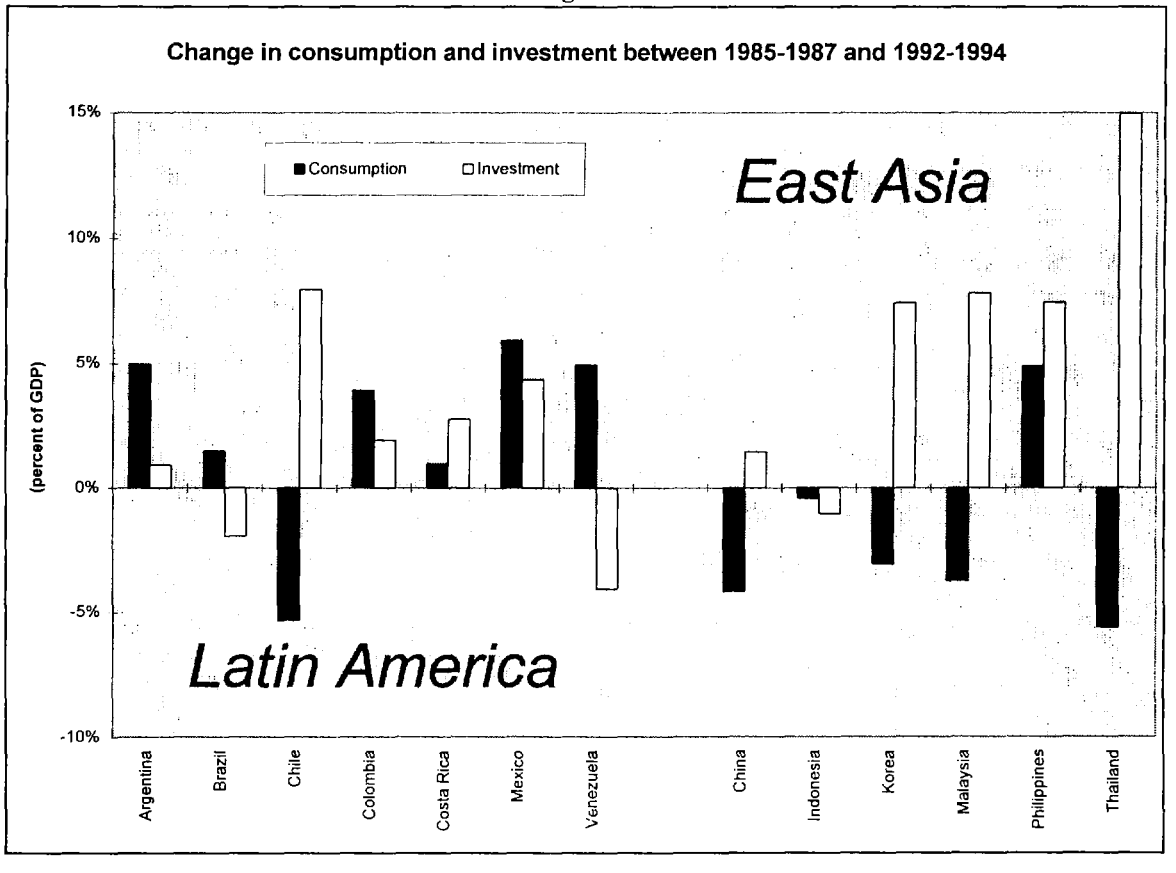


Table 1: Aggregate net resource flows to all developing countries, 1986-93 (US$ billions)

Year	Official Grants	Official Loans	Private Loans	Foreign Direct Investment	Portfolio Equity Investment
1986	20.3	35.4	11.7	12.9	0.8
1987	19.3	31.7	10.0	16.9	0.8
1988	20.0	24.6	12.0	23.2	1.2
1989	19.2	23.4	12.7	25.7	3.5
1990	28.7	29.2	15.0	26.7	3.8
1991	32.6	29.2	18.5	36.8	7.6
1992	29.9	20.4	41.4	47.1	14.2
1993	30.1	23.8	45.7	66.6	46.9

Source: The World Bank, Debt Reporting System. World Debt Tables 1993-94 and 1994-95.

Table 2: Aggregate net resource private long-term flows to all developing countries, 1988-94, by region and type of flow

By Region			By Type		
Region	US$ bn.	%	Type of flow	US$ bn.	%
Sub-Saharan Africa	9.1	1%			
East Asia & Pacific	258.4	43%	Total Private	620.3	
South Asia	30.6	5%	-of which		
Europe & Central Asia	129.8	21%	-Private Loans and bonds	210.8	32.5% (83.4%)
Mid. East & N. Africa	21.4	3%	-Foreign Direct Investment	302.0	48.7% (16.5%)
Latin America & Carib.	170.3	27%	-Portfolio Equity Investment	116.5	18.8% (0.1%)

Note: 1994 data are estimated. Percentages in brackets show the composition of private flows during 1977-1982.

Source: The World Bank, Debt Reporting System.

Table 3: Total private capital flows by country (annual average, post-cutoff)

Country	Cutoff date	Total Private Capital Flows Annual average post-cutoff in US$ millions	Total Private Capital Flows Annual average post-cutoff as a % of 1992 GNP	Country	Cutoff date	Total Private Capital Flows Annual average post-cutoff in US$ millions	Total Private Capital Flows Annual average post-cutoff as a % of 1992 GNP
Low Capital Inflow Recipients				**High Capital Inflow Recipients**			
ECUADOR		-13.6	-0.1	KOREA	1991	6571.9	2.2
ZAIRE		-7.1	-0.1	ARGENTINA	1991	5415.7	2.4
PARAGUAY		10.4	0.2	PHILIPPINES	1992	1413.3	2.6
NIGERIA		109.3	0.4	COLOMBIA	1993	1258.0	2.7
PAKISTAN		213.7	0.4	TUNISIA	1992	444.5	2.9
COTE D'IVOIRE		38.7	0.4	VENEZUELA	1991	1761.4	3.0
SYRIA		84.6	0.5	INDONESIA	1990	3717.1	3.0
INDIA		1623.1	0.7	COSTA RICA	1991	195.0	3.1
PERU	1993	150.0	0.7	TURKEY	1991	3459.2	3.2
KENYA		60.7	0.7	MEXICO	1990	11793.5	3.7
URUGUAY		88.3	0.8	CHILE	1990	1637.6	4.2
EGYPT		293.0	0.8	THAILAND	1988	4546.4	4.2
ZIMBABWE		56.4	1.0	PORTUGAL	1989	4206.1	5.3
JORDAN		57.0	1.3	CHINA	1992	27619.6	6.4
MOROCCO		353.6	1.3	MALAYSIA	1989	4112.4	7.5
BOLIVIA	1991	67.8	1.3				
BRAZIL	1991	5827.6	1.5				

Source: The World Bank, Debtor Reporting System.

Table 4: Macroeconomic indicators for HCIR and LCIR countries

	Gross Nat. Savings (%GNP)	Gross Dom. Investment (%GNP)	Private Consumpt. (%GNP)	Fiscal Deficit (%GNP)	Total Exports (%GDP)	Annual Exports Growth	Total Ext. Debt (%GNP)	Political Risk index	Inflation Variability	RER Variability (%)	Inflation Variance (%)	Foreign Reserves (%GDP)	Monthly Inflation (%)
							High Capital Inflow Recipients						
Average	26.1%	28.3%	66.5%	1.1%	31.4%	8.5%	52.9%	46.2	2.2	5.9	1.4	12.2%	2.3
Max	46.5%	44.9%	90.5%	4.9%	73.7%	17.3%	77.1%	60.3	23.8	19.4	7.7	31.8%	16.4
Min	17.3%	16.5%	53.7%	-2.4%	10.9%	3.1%	12.0%	33.7	0.1	0.5	0.1	3.5%	0.3
							Low Capital Inflow Recipients						
Average	12.3%	20.8%	78.9%	5.1%	27.5%	4.8%	90.5%	35.4	4.8	7.3	3.7	6.5%	3.5
Max	23.2%	30.3%	134.5%	12.3%	86.8%	13.9%	161.4%	39.2	35.7	12.1	13.7	20.2%	25.1
Min	-6.0%	10.9%	59.9%	-0.9%	5.7%	-3.8%	22.4%	31.7	0.6	1.8	0.4	0.3%	0.2

Note: Indicators are computed for the different countries from two years before the cutoff period and up to 1993 (or for 1988-93 when the cutoff is not available). The only exceptions are total debt over GNP and foreign reserves over GDP, which were averaged from two years before the inflows started and up to the cutoff period (or for 1988-90 when a clear cutoff does not exist). The latter indicators were not averaged over the entire sample period because they are not independent of the inflows.

Source: The World Bank, Debtor Reporting System.

Table 5: Panel data regression

$F_{it} = \alpha_i + \beta_1 INV_{it-1} + \beta_2 CONS_{it-1} + \beta_3 DRES_{it-1} + \beta_4 VRER_{it} + \beta_5 DBRAD + \beta_6 EXPG_{it-1} + \beta_7 IUS_t + \beta_8 IDUM90_t + \delta F_{it-1} + \mu_{it}$

	Dependent variable: Private Flows						
	1986-93	**1986-93**	**1986-93**	**1986-93**	**1986-93**	**1986-93**	**1986-93**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
INV_{t-1}	0.083	**0.097**	0.103	0.080	0.094	0.101	0.066
	(1.47) *	**(1.68)** **	(1.80) **	(1.42) *	(1.65) **	(1.75) **	(1.12)
$CONS_{t-1}$	-0.081	**-0.087**	-0.080	-0.082	-0.090	-0.082	-0.074
	(1.59) *	**(1.71)** **	(1.56) *	(1.62) *	(1.76) **	(1.60) *	(1.45) *
$DRES_{t-1}$	-0.035	**-0.036**		-0.035	-0.036		-0.033
	(4.20) **	**(4.30)** ***		(4.11) ***	(4.23) ***		(3.90) ***
$TSFL_{t-1}$			-0.037			-0.036	
			(4.47) ***			(4.41) ***	
$VRER_t$	-0.000035	**-0.000036**	-0.000040	-0.000035	-0.000036	-0.000040	-0.000032
	(2.21) **	**(2.24)** **	(2.48) ***	(2.20) **	(2.24) **	(2.48) ***	(1.95) **
DBRAD	0.00166	**0.00355**	0.00413	0.00103	0.00303	0.00355	0.00005
	(0.25)	**(0.52)**	(0.61)	(0.15)	(0.44)	(0.53)	(0.01)
$EXPG_{t-1}$	0.000091	**0.000107**	0.000119	0.000098	0.000117	-0.000129	0.000038
	(0.48)	**(0.57)**	(0.64)	(0.52)	(0.62)	(0.69)	(0.19)
$ITBND3_t$				0.000195	-0.000077	-0.000255	
				(0.15)	(0.06)	(0.21)	
$ITB12_t$	0.000481	**0.000366**	0.000197				
	(0.45)	**(0.34)**	(0.19)				
$IPRIN_t$							0.009410
							(1.06)
$IDUM90_t$		**-0.000746**	-0.000648		-0.000661	-0.000576	-0.008931
		(1.24)	(1.09)		(1.27)	(1.12)	(1.03)
F_{t-1}	0.428	**0.435**	0.440	0.427	0.433	0.438	0.434
	(5.92) **	**(6.00)** ***	(6.09) ***	(5.90) ***	(5.98) ***	(6.07) ***	(5.97) ***
$\chi 2$	30.0	**33.7**	37.3	29.7	82.2	39.0	40.6
p-value	0.0002	**0.0001**	0.0000	0.0002	0.0000	0.0000	0.0000
Adj. R^2	0.475	**0.477**	0.482	0.475	0.477	0.482	0.434
N obs	176	**176**	176	176	176	176	176

* Significant at 10 percent level.

** Significant at 5 percent level.

*** Significant at 1 percent level.

Note: T ratios for the parameters are reported in parentheses. The null hypothesis in case of χ^2 test is the Random Effect Model. For the χ^2 test the marginal significance level (p value) is given in parenthesis.

Table 6: Panel data regression

$F_{it} = \alpha_i + \beta_1 INV_{it-1} + \beta_2 CONS_{it-1} + \beta_3 DRES_{it-1} + \beta_4 VRER_{it} + \beta_5 DBRAD + \beta_6 EXPG_{it-1} + \beta_7 IUS_t + \beta_8 IDUM90_t + \delta F_{it-1} + \mu_{it}$

Dependent Variable: Private Flows minus Foreign Direct Investment

	1986-93 (1)	1986-93 (2)	1986-93 (3)	1986-93 (4)	1986-93 (5)	1986-93 (6)	1986-93 (7)
INV_{t-1}	0.096	0.115	0.120	0.093	0.115	0.120	0.098
	(2.04) **	(2.43) ***	(2.55) ***	(2.00) **	(2.41) ***	(2.52) ***	(2.00) **
$CONS_{t-1}$	-0.058	-0.069	-0.065	-0.060	-0.071	-0.067	-0.061
	(1.37) *	(1.62) *	(1.50) *	(1.40) *	(1.67) **	(1.55) **	(1.41) *
$DRES_{t-1}$	-0.030	-0.031		-0.029	-0.031		-0.030
	(4.18) ***	(4.39) ***		(4.11) ***	(4.33) ***		(4.11) ***
$TSFL_{t-1}$			-0.031			-0.030	
			(4.45) ***			(4.40) ***	
$VRER_t$	-0.000019	-0.000019	-0.000022	-0.000018	-0.000019	-0.000022	-0.000019
	(1.39) *	(1.44) *	(1.66) **	(1.36) *	(1.44) *	(1.66) **	(1.40) *
DBRAD	0.00315	0.00569	0.00664	0.00267	0.00541	0.00591	0.00308
	(0.57)	(1.01)	(1.11)	(0.48)	(0.95)	(1.04)	(0.54)
$EXPG_{t-1}$	-0.000080	-0.000058	-0.000050	-0.000075	-0.000049	-0.000041	-0.000063
	(0.51)	(0.37)	(0.32)	(0.48)	(0.32)	(0.26)	(0.38)
$ITBND3_t$				0.001114	0.000733	0.000552	
				(1.08)	(0.71)	(0.54)	
$ITB12_t$	0.001220	0.001060	0.000894				
	(1.34) *	(1.17)	(1.00)				
$IPRIN_t$							0.000926
							(0.13)
$IDUM90_t$		-0.001002	-0.000914		-0.000904	-0.000826	0.002190
		(2.02) **	(1.85) **		(2.10) **	(1.93) **	(0.30)
F_{t-1}	0.356	0.356	0.356	0.357	0.355	0.355	0.353
	(4.90) ***	(4.94) ***	(4.96) ***	(4.90) ***	(4.92) ***	(4.94) ***	(4.70) ***
$\chi 2$	30.7	34.7	32.6	30.5	61.9	187.9	54.6
p-value	0.0002	0.0001	0.0001	0.0002	0.0000	0.0000	0.0000
Adj. R^2	0.445	0.456	0.458	0.443	0.455	0.457	0.44
N obs	176	176	176	176	176	176	176

* Significant at 10 percent level.

** Significant at 5 percent level.

*** Significant at 1 percent level.

Note: T ratios for the parameters are reported in parentheses. The null hypothesis in case of χ^2 test is the Random Effect Model. For the χ^2 test the marginal significance level (p value) is given in parenthesis.

Table 7: Panel Data Regression

$F_{it} = \alpha_i + \beta_1 INV_{it-1} + \beta_2 CONS_{it-1} + \beta_3 DRES_{it-1} + \beta_4 VRER_{it} + \beta_5 DBRAD + \beta_6 EXPG_{it-1} + \beta_7 IUS_t + \beta_8 IDUM90_t + \delta F_{it-1} + \mu_{it}$

Dependent variable: Private Flows excluding commercial bank lending

	1986-93 (1)	1986-93 (2)	1986-93 (3)	1986-93 (4)	1986-93 (5)	1986-93 (6)	1986-93 (7)
INV_{t-1}	0.067	0.067	0.070	0.065	0.065	0.068	0.047
	(1.35) *	(1.33) *	(1.40) *	(1.32) *	(1.29) *	(1.35) *	(0.93)
$CONS_{t-1}$	-0.090	-0.090	-0.085	-0.091	-0.091	-0.086	-0.082
	(2.07) **	(2.05) **	(1.93) **	(2.10) **	(2.08) **	(1.95) **	(1.89) **
$DRES_{t-1}$	-0.017	-0.017		-0.016	-0.016		-0.015
	(2.33) ***	(2.31) ***		(2.27) **	(2.25) **		(1.97) **
$TSFL_{t-1}$			-0.018			-0.017	
			(2.50) ***			(2.45) ***	
$VRER_t$	-0.000028	-0.000028	-0.000031	-0.000028	-0.000028	-0.000031	-0.000024
	(2.10) **	(2.09) **	(2.24) **	(2.09) **	(2.09) **	(2.24) **	(1.73) **
DBRAD	0.00352	0.00350	0.00370	0.00315	0.00311	0.00328	0.00172
	(0.62)	(0.60)	(0.64)	(0.55)	(0.53)	(0.56)	(0.30)
$EXPG_{t-1}$	0.000320	0.000319	0.000326	0.000324	0.000324	0.000331	0.000242
	(2.00) **	(1.99) **	(2.04) **	(2.03) **	(2.02) **	(2.07) **	(1.46) *
$ITBND3_t$				-0.000727	-0.000721	-0.000779	
				(0.69)	(0.68)	(0.74)	
$ITB12_t$	-0.000451	-0.000450	-0.000510				
	(0.49)	(0.48)	(0.56)				
$IPRIN_t$							0.010490
							(1.41) *
$IDUM90_t$		0.000009	0.000050		0.000016	0.000052	-0.012560
		(0.02)	(0.10)		(0.04)	(0.12)	(1.73) **
F_{t-1}	0.334	0.334	0.337	0.332	0.331	0.334	0.328
	(4.23) ***	(4.18) ***	(4.24) ***	(4.20) ***	(4.15) ***	(4.20) ***	(4.18) ***
$\chi 2$	28.2	28.2	29.7	28.2	44.7	76.3	29.9
p-value	0.0004	0.0009	0.0005	0.0004	0.0000	0.0000	0.0005
Adj. R^2	0.492	0.489	0.491	0.493	0.490	0.492	0.499
N obs	176	176	176	176	176	176	176

* Significant at 10 percent level.

** Significant at 5 percent level.

*** Significant at 1 percent level.

Note: T ratios for the parameters are reported in parentheses. The null hypothesis in case of χ^2 test is the Random Effect Model. For the χ^2 test the marginal significance level (p value) is given in parenthesis.

Table 8: Panel data regression

$F_{it} = \alpha_i + \beta_1 INV_{it-1} + \beta_2 CONS_{it-1} + \beta_3 DRES_{it-1} + \beta_4 VRER_{it} + \beta_5 DBRAD + \beta_6 EXPG_{it-1} + \beta_7 IUS_t + \beta_8 IDUM90_t + \delta F_{it-1} + \mu_{it}$

Dependent variable: Private Flows

	1979-93 (1)	1979-93 (2)	1979-93 (3)	1979-93 (4)	1979-93 (5)	1979-93 (6)	1979-93 (7)
INV_{t-1}	0.065	0.066	0.068	0.065	0.066	0.068	0.049
	(1.88) **	(1.91) **	(1.97) **	(1.89) **	(1.93) **	(1.98) **	(1.39) *
$CONS_{t-1}$	-0.026	-0.029	-0.024	-0.025	-0.029	-0.024	-0.038
	(0.89)	(0.99)	(0.83)	(0.87)	(0.97)	(0.80)	(1.30) *
$DRES_{t-1}$	-0.014	-0.013		-0.014	-0.013		-0.008
	(2.78) ***	(2.63) ***		(2.81) ***	(2.65) ***		(1.52) *
$TSFL_{t-1}$			-0.013			-0.014	
			(2.95) ***			(2.98) ***	
$VRER_t$	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
	(0.09)	(0.15)	(0.10)	(0.08)	(0.13)	(0.09)	(0.27)
DBRAD	0.00980	0.01165	0.01194	0.00957	0.01160	0.01186	0.00903
	(1.77) **	(1.98) **	(2.05) **	(1.74) **	(1.96) **	(2.01) **	(1.50) *
$EXPG_{t-1}$	-0.000074	-0.000069	-0.000067	-0.000074	-0.000070	-0.000068	-0.000064
	(0.71)	(0.66)	(0.64)	(0.72)	(0.67)	(0.07)	(0.62)
$ITBND3_t$				-0.000014	-0.000088	-0.000104	
				(0.04)	(0.26)	(0.31)	
$ITB12_t$	0.000049	-0.000026	-0.000052				
	(0.14)	(0.07)	(0.15)				
$IPRIN_t$							0.003846
							(2.29) **
$IDUM90_t$		-0.000495	-0.000387		-0.000412	-0.000314	-0.006765
		(0.95)	(0.73)		(0.94)	(0.71)	(1.91) **
F_{t-1}	0.519	0.516	0.512	0.520	0.516	0.513	0.499
	(1.05) ***	(10.45) ***	(10.41) ***	(10.57) ***	(10.46) ***	(10.42) ***	(9.98) ***
$\chi 2$	27.0	27.1	36.4	27.0	27.0	28.0	29.4
p-value	0.0007	0.0014	0.0000	0.0007	0.0014	0.0009	0.0005
Adj. R^2	0.566	0.566	0.569	0.566	0.566	0.568	0.572
N obs	330	330	330	330	330	330	330

* Significant at 10 percent level.

** Significant at 5 percent level.

*** Significant at 1 percent level.

Note: T ratios for the parameters are reported in parentheses. The null hypothesis in case of χ^2 test is the Random Effect Model. For the χ^2 test the marginal significance level (p value) is given in parenthesis.

Table 9: Composition of private flows for sample countries

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Foreign Direct Investment										
-in US millions	7289.7	9403.5	8692.1	12056.1	17759.3	21250.4	22415.5	29732.4	38476.6	56595.0
-in % of total private flows	**28.9**	**42.8**	**55.0**	**75.4**	**60.0**	**79.6**	**54.1**	**52.5**	**45.3**	**52.7**
Portfolio Flows										
-in US millions	2329.5	5812.1	3738.8	3524.8	8228.7	5628.4	6480.3	15918.7	31245.2	51583.8
-in % of total private flows	**9.2**	**26.4**	**23.7**	**22.0**	**27.8**	**21.1**	**15.6**	**28.1**	**36.8**	**48.0**
Commercial Banks + Suppliers										
-in US millions	15585.6	6772.2	3358.6	415.6	3606.0	-187.5	12565.1	10929.4	15238.4	-699.8
-in % of total private flows	**61.8**	**30.8**	**21.3**	**2.6**	**12.2**	**-0.7**	**30.3**	**19.3**	**17.9**	**-0.7**

Source: World Bank, Debt Reporting System.

Table 10: Mexico and other high capital inflow recipient countries

	High Capital Inflow Recipients					
	Gross Nat. Savings (% GNP)	Gross Dom. Investment (%GNP)	Private Consumpt. (%GNP)	Fiscal Deficit (%GNP)	Total Exports (%GDP)	Annual Exports Growth (%)
Avg. (excl. Mexico)	26.7%	28.6%	65.9%	1.3%	32.2%	8.9%
Mexico	17.6%	22.8%	74.8%	-1.4%	20.3%	3.1%
	Inflation Variability (%)(1)	RER Variability (%)(2)	Inflation Variance (%)(1)	Foreign Reserves (%GDP)	Monthly Inflation (%)(1)	Total External Debt (%GNP)
Avg. (excl. Mexico)	0.62	4.57	1.26	12.8%	1.30	53.0%
Mexico	1.08	7.99	3.48	3.5%	1.73	51.6%

Notes: (1) The group average excludes Argentina
(2) The group average excludes Argentina and Venezuela

Note: Indicators are computed for the different countries from two years before the cutoff period and up to 1993 (or for 1988-93 when the cutoff is not available). The only exceptions are total debt over GNP and foreign reserves over GDP, which were averaged from two years before the inflows started and up to the cutoff period (or for 1988-90 when a clear cutoff does not exist). The latter indicators were not averaged over the entire sample period because they are not independent of the inflows.

Source: World Bank, Debtor Reporting System.

Appendix

Data

We use annual long-term private capital inflows data—the sum of FDI, portfolio flows, and private net flows on debt—for 22 developing countries for 1986-1993. As argued earlier, our study is more comprehensive than previous research because it includes FDI (which is almost fifty percent of total private inflows) as part of long-term private capital flows. All data on financial flows, stocks and reserves are World Bank's from the Debtor Reporting System.[1] Data on national accounts were obtained from The World Bank Database (ANDREX).

Data on international interest rates and the US industrial production index were obtained from the IMF's International Financial Statistics and from the Federal Reserve Board's publications. Interest rates used are: three-months U.S. Treasury bill rate (IFS line 60c), certificate of deposit rate (IFS line 60lc); 10-year U.S. government bond yield (IFS line 61); three-month LIBOR (IFS line 60ldd); and three-year government bond yield (IFS line 61a). The U.S. production index was also taken from IFS (line 66). The 12-months U.S. Treasury bill rate was obtained from the U.S. Federal Reserve Board. Data on real effective exchange rates were obtained from the IMF.

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[1] These data corresponds to those published in World Bank (1994).

Table A.1: Panel data correlations

Panel Data Correlations: 1986-1993

	Total Private Flows	Total Private Flows t-1	Investment Mov.Avg. t-1	Priv.Cons. Mov.Avg. t-1	Debt-Reserves t-1	Variance REER	US bond yield	10-yr US rate	T-bill	PC Rat. & Prod.Index	US Ind.	Int
Total Flows	1											
Total Flows (-1)	0.6239	1										
Inv. Mov.Av. (-1)	0.2843	0.2642	1									
Priv.Cons.MA (-1)	-0.0751	0.0337	-0.6269	1								
Debt-Res(-1)	-0.0731	0.1209	-0.3297	0.7194	1							
Var.REER	-0.1231	-0.1063	-0.1800	0.0434	-0.0753	1						
US 10-yr bond yield	-0.1660	-0.1123	-0.0888	0.0254	0.1504	0.0329	1					
US T-bill rate	-0.0998	-0.0703	-0.0717	0.0090	0.1300	0.0712	0.8879	1				
PCUS Int Rates and IPI	-0.1313	-0.0925	-0.0845	0.0192	0.1442	0.0594	0.9527	0.9840				1

Panel Data Correlations: 1979-1993

	Total Private Flows	Total Private Flows t-1	Investment Mov.Avg. t-1	Priv.Cons. Mov.Avg. t-1	Debt-Reserves t-1	Variance REER	US bond yield	10-yr US rate	T-bill	PC Rat. & Prod.Index	US Ind.	Int
Total Flows	1											
Total Flows (-1)	0.7229	1										
Inv. Mov.Av. (-1)	0.3345	0.3212	1									
Priv.Cons.MA (-1)	-0.1050	-0.0209	-0.5494	1								
Debt-Res(-1)	-0.0913	0.0305	-0.2849	0.5761	1							
Var.REER	-0.0783	-0.0796	-0.1601	0.0409	0.1464	1						
US 10-yr bond yield	0.1775	0.2260	0.1230	-0.0365	-0.1722	0.0360	1					
US T-bill rate	0.2065	0.2159	0.1347	-0.0751	-0.2209	-0.0001	0.9051	1				
PCUS Int Rates and IPI	0.1989	0.2236	0.1321	-0.0604	-0.2054	0.0129	0.9641	0.9849				1

Table A.2: Macroeconomic indicators for HCIR and LCIR countries: individual country means

	Gross Nat. Savings (% GNP)	Gross Dom. Investment (%GNP)	Private Consumpt. (%GNP)	Fiscal Deficit (%GNP)	Total Exports (%GDP)	Annual Exports Growth	Total Ext. Debt (%GNP)	Political Risk Index	Inflation Variabilit	RER Variabilit (%)	Inflation Variance (%)	Foreign Reserves (%GDP)	Monthly Inflation (%)
							High Capital Inflow Recipients						
Malaysia	31.8%	32.2%	53.7%	0.1%	73.7%	13.1%	62.9%	52.6	0.8	3.4	0.1	24.4%	0.3
China	46.5%	44.9%	60.3%	2.3%	19.4%	14.6%	12.0%	50.8	0.1	2.3	0.1	8.8%	0.8
Portugal	26.1%	29.2%	64.7%	4.9%	39.6%	6.5%	46.4%	60.3	0.3	7.4	0.2	31.8%	0.8
Thailand	32.1%	37.6%	60.2%	-1.5%	34.3%	17.3%	41.6%	46.4	1.0	1.6	0.4	9.5%	0.3
Chile	25.2%	28.1%	72.8%	-2.4%	35.4%	11.1%	72.6%	46.3	0.5	2.4	0.7	15.8%	1.3
Mexico	17.6%	22.8%	74.8%	-1.4%	20.3%	3.1%	51.6%	41.7	1.1	8.0	3.5	3.5%	1.7
Turkey	22.0%	23.4%	66.5%	4.8%	25.6%	8.7%	48.8%	51.0	1.0	9.5	4.4	7.5%	4.4
Costa Rica	20.1%	29.2%	63.6%	0.7%	40.2%	10.7%	77.1%	n/a	0.4	1.4	0.5	11.7%	1.4
Indonesia	33.3%	35.6%	58.0%	0.9%	24.1%	6.1%	58.8%	47.2	0.7	1.4	0.7	7.3%	0.7
Venezuela	20.0%	16.5%	67.5%	0.1%	25.4%	6.0%	71.3%	41.6	1.5	19.4	7.7	23.1%	3.1
Tunisia	20.1%	25.3%	64.2%	3.8%	39.2%	4.2%	62.4%	n/a	0.5	0.5	0.2	6.7%	0.5
Colombia	22.5%	19.6%	70.1%	0.5%	19.3%	6.6%	38.5%	33.7	0.4	3.1	0.7	15.4%	1.9
Philippines	20.6%	22.6%	74.0%	2.0%	32.0%	6.2%	70.0%	34.5	0.4	15.8	0.4	7.2%	0.9
Argentina	17.3%	19.3%	90.5%	1.4%	10.9%	4.1%	64.6%	40.2	23.8	n\a	n\a	4.3%	16.4
korea	36.4%	37.6%	55.9%	-0.2%	31.1%	9.5%	14.3%	55.0	0.4	6.0	0.2	6.4%	0.5
	Gross Nat. Savings (% GNP)	Gross Dom. Investment (%GNP)	Private Consumpt. (%GNP)	Fiscal Deficit (%GNP)	Total Exports (%GDP)	Annual Exports Growth	Total Ext. Debt (%GNP)	Political Risk index	Inflation Variabilit	RER Variabilit (%)	Inflation Variance (%)	Foreign Reserves (%GDP)	Monthly Inflation (%)
							Low Capital Inflow Recipients						
Brazil	21.7%	21.5%	62.2%	4.9%	11.8%	4.3%	24.6%	41.0	7.4	n\a	n\a	1.9%	26.0
Bolivia	3.3%	14.4%	81.2%	2.3%	18.9%	-1.2%	93.4%	n\a	1.0	4.2	1.2	11.9%	1.1
Morocco	21.8%	23.9%	67.5%	3.9%	23.2%	0.7%	94.6%	n\a	3.0	1.8	1.0	3.6%	0.4
Jordan	-6.0%	30.3%	93.9%	4.9%	86.8%	11.8%	146.6%	n\a	3.2	9.1	2.3	13.0%	0.9
Zimbabwe	17.8%	23.4%	59.9%	9.6%	28.9%	-1.4%	43.4%	n\a	1.4	n\a	2.2	4.9%	1.7
Egypt	10.4%	22.2%	84.2%	5.8%	19.7%	3.1%	161.4%	37.5	3.5	12.1	5.2	7.3%	1.3
Uruguay	14.4%	13.3%	73.1%	0.4%	26.6%	5.5%	51.5%	n\a	0.6	n\a	3.0	20.2%	5.0
Kenia	14.4%	20.9%	60.9%	4.3%	25.5%	13.7%	67.8%	n\a	2.0	n\a	5.2	3.6%	1.9
Peru	7.9%	29.2%	134.5%	3.6%	5.7%	-0.4%	65.8%	31.7	0.9	n\a	5.9	10.5%	4.7
India	23.2%	25.5%	64.3%	6.8%	7.1%	11.4%	22.4%	32.2	1.0	9.4	0.7	3.8%	0.8
Syria	5.2%	16.8%	80.8%	-0.9%	13.5%	-0.9%	154.3%	n\a	5.3	n\a	5.2	2.5%	1.2
Cote D'Ivoi	-3.4%	11.4%	74.0%	12.3%	38.3%	4.0%	136.1%	n\a	7.5	n\a	0.4	0.3%	0.2
Pakistan	22.6%	19.4%	72.3%	7.3%	15.8%	13.9%	44.8%	37.2	1.0	n\a	0.7	3.2%	0.8
Nigeria	14.9%	17.5%	77.1%	10.1%	29.4%	4.5%	100.0%	34.5	4.3	4.0	13.7	4.7%	2.9
Paraguay	18.7%	24.0%	75.2%	-0.4%	34.8%	4.1%	57.1%	n\a	2.5	n\a	3.7	9.4%	1.7
Zaire	5.5%	10.9%	89.1%	6.0%	25.7%	-3.8%	100.8%	n\a	35.7	n\a	n\a	3.7%	25.1
Ecuador	17.5%	23.0%	77.0%	2.5%	30.9%	6.4%	111.3%	39.2	0.7	n\a	2.7	6.4%	3.7

Note: Indicators are computed for the different countries from two years before the cutoff period and up to 1993 (or for 1988-93 when the cutoff is not available). The only exceptions are total debt over GNP and foreign reserves over GDP, which were averaged from two years before the inflows started and up to the cutoff period (or for 1988-90 when a clear cutoff does not exist). The latter indicators were not averaged over the entire sample period because they are not independent of the inflows.

Source: The World Bank, Debt Reporting System, IMF and BERI.

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